



natural
biologics®
solutions by nature

DTOX-MAX™ FACTS

- Proprietary formulation for a broad range of toxin-degrading enzymes.
- Hydrolyzed yeast for effective pathogen binding in the GI tract to reduce gut challenges.
- Algal beta glucan for enhanced immune system support.
- Four unique species of *Bacillus* for improved nutrient digestion and mitigation of *Clostridia*.

Figure 1. Binding Effectiveness Against Pathogens

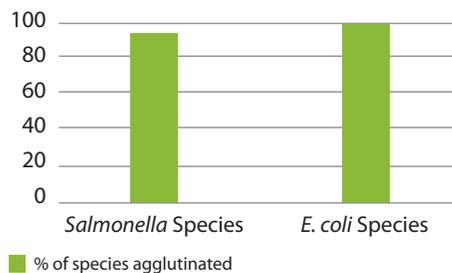
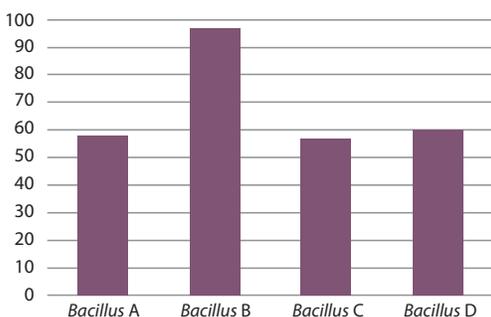
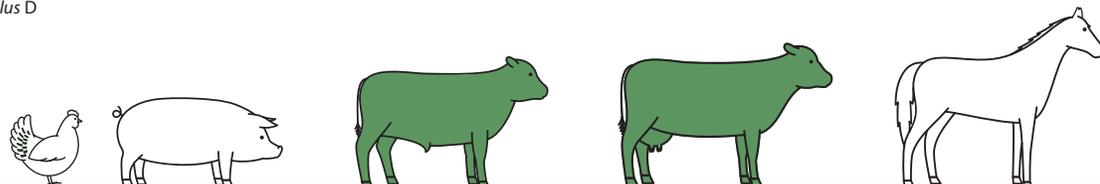


Figure 2. % Inhibition



© Natural Biologics, Inc. 2023 All Rights Reserved
Natural Biologics, Solutions by Nature, and
Natural Biologics logo are trademarks of
Natural Biologics, Inc., Newfield, NY USA.



► Product Description:

Dtox-Max is an all-natural, highly concentrated proprietary formulation of bacterial and fungal enzymes, refined bioactive carbohydrates and multiple species of *Bacillus*. Together, these components mitigate the most prevalent gut challenges presented by toxins, molds and bacterial pathogens while supporting robust immune responsiveness.

► Modes of Action:

Microbial & Fungal Enzymes –

Non-polar toxins, such as DON, T-2 and Zearalenone, can be degraded by specific enzymes, rendering them harmless, bound and easily removed from the GI tract. For example, the yeast enzyme epoxidase is very effective at breaking down the epoxide ring structure that is part of many mycotoxins. Additional bacterial enzymes are used to disrupt the chemical structure of other mycotoxins.

MOS – The MOS component of Dtox-Max provides effective pathogen binding in the GI tract. In our testing, the hydrolyzed yeast source of our MOS was able to effectively bind 96% and 100% of livestock-derived *Salmonella* and *E. coli* strains, respectively (Figure 1).

Beta Glucan – Concentrated from a unique species of algae, improves both innate and adaptive immune response. The 1,3 beta glucan from algae binds with higher affinity to receptors in the immune system, providing improved antibody responses to vaccinations or disease exposure.

Bacillus – Four unique species of *Bacillus* developed to mitigate the risk of *Clostridia* species and in particular *Clostridium perfringens* in livestock. It is also proven to be a strong producer of bacterial amylase, protease and xylanase to assist in nutrient digestibility during stressful situations.

We chose to include multiple *Bacillus* species because each has its own strengths. Some are active enzyme producers, some secrete potent bacteriocins. The data shown in Figure 2 are from a bacteriocin screening of a common *Enterococcus* pathogen, which demonstrated the variability of the *Bacillus*' ability to inhibit this pathogen.

Providing your own source of "clay" or aluminosilicate binders to the mix will help remove the polar toxins and the leftover pieces of the non-polar toxins.

To learn more, visit naturalbiologics.com or 844.NAT.BIOL (628.2465)



natural
biologics®
solutions by nature

DTOX-MAX™



► **Product Description:**

Dtox-Max is an all-natural, highly concentrated proprietary formulation of bacterial and fungal enzymes, refined bioactive carbohydrates and multiple species of *Bacillus*. Together, these components mitigate the most prevalent gut challenges presented by toxins, molds and bacterial pathogens while supporting robust immune responsiveness

► **Ingredient Composition:** Hydrolyzed yeast, dried yeast (*Saccharomyces cerevisiae*), plant protein product, dried fermentation extracts of *Aspergillus niger*, and *Trichoderma longibrachiatum*, calcium aluminosilicates, manganese sulfate, dried fermentation products of *Bacillus amyloliquefaciens*, *Bacillus subtilis*, *Bacillus licheniformis*, and *Bacillus pumilus*, maltodextrins, silicon dioxide and mineral oil

► **Purpose:** Dtox-Max is to be used to supplement complete diets for all stages of ruminant production.

► **Feeding Directions:**

To be included in complete diets as indicated or as recommended by a qualified nutritionist.

Typical Analysis: Request from manufacturer

Density: 31 - 34 lb/cu ft

Appearance: Light brown, free-flowing powder

Packaging: 55.1 lb. (25 kg) bags

Shelf Life: One year from date of manufacture when stored in a cool, dry place in the original package.

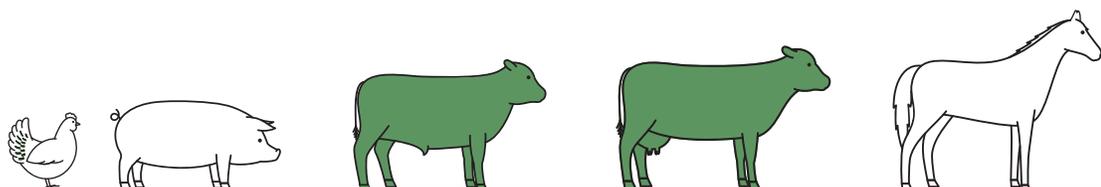
Precautions: Use only as directed. Avoid inhalation of dust.

► **Dairy Cattle**

Dry/Prefresh Cows 11 g/hd/d
Lactating Cows 7 g/hd/d

Guaranteed Analysis:		
Crude protein	Minimum	20.0%
Crude fat	Minimum	0.5%
Crude fiber	Maximum	10.0%
Moisture	Maximum	10.0%
Ash	Maximum	30.0%

© Natural Biologics, Inc. 2023 All Rights Reserved
Natural Biologics, Solutions by Nature, and
Natural Biologics logo are trademarks of
Natural Biologics, Inc., Newfield, NY USA. 2304-053



To learn more, visit naturalbiologics.com or 844.NAT.BIOL (628.2465)